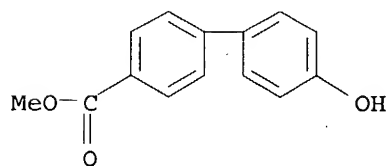


=> d pn bib hitstr 60-84

L37 ANSWER 60 OF 84 USPATFULL on STN  
PI US 5133896 19920728  
WO 8905792 19890629  
AN 92:61673 USPATFULL  
TI Cyanohydrin derivatives and their use in liquid crystal materials and devices  
IN Coates, David, Wimborne, England  
Greenfield, Simon, Poole, England  
Sage, Ian C., Broadstone, England  
PA The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England (non-U.S. government)  
PI US 5133896 19920728  
WO 8905792 19890629  
AI US 1990-543744 19900711 (7)  
WO 1988-GB1111 19881215  
19900711 PCT 371 date  
19900711 PCT 102(e) date  
PRAI GB 1987-29502 19871218  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Stoll, Robert L.; Assistant Examiner: Wu, Shean C.  
LREP Nixon & Vanderhye  
CLMN Number of Claims: 23  
ECL Exemplary Claim: 1  
DRWN 11 Drawing Figure(s); 6 Drawing Page(s)  
LN.CNT 982  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
IT 40501-41-5  
(reaction of, in formation of cyanohydrin derivs. for liquid-crystal mixts.)  
RN 40501-41-5 USPATFULL  
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, methyl ester (9CI) (CA INDEX NAME)



L37 ANSWER 61 OF 84 USPATFULL on STN  
PI US 5132041 19920721  
AN 92:59614 USPATFULL  
TI Liquid crystal compounds having ether tail moiety  
IN Cumming, William J., Chelmsford, MA, United States  
Gaudiana, Russell A., Merimack, NH, United States  
McGowan, Cynthia, Stoneham, MA, United States  
Minns, Richard A., Arlington, MA, United States  
Naiman, Alaric, Cambridge, MA, United States  
PA Polaroid Corporation, Cambridge, MA, United States (U.S. corporation)  
PI US 5132041 19920721  
AI US 1987-61072 19870623 (7)  
RLI Continuation-in-part of Ser. No. US 1986-887620, filed on 21 Jul 1986, now abandoned  
DT Utility  
FS Granted

EXNAM Primary Examiner: Stoll, Robert L.; Assistant Examiner: Harris, C.  
LREP Xiarhos, Louis G.  
CLMN Number of Claims: 39  
ECL Exemplary Claim: 1  
DRWN No Drawings  
LN.CNT 884

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

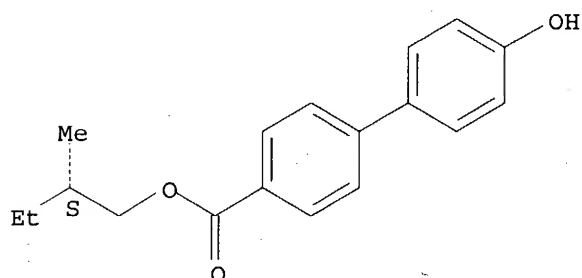
IT 91577-91-2P

(preparation and reaction of, in formation of smectic liquid crystals)

RN 91577-91-2 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester  
(9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

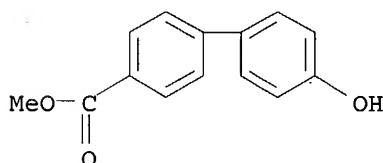


IT 40501-41-5

(reaction of, in preparation of smectic liquid crystals)

RN 40501-41-5 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, methyl ester (9CI) (CA INDEX NAME)



L37 ANSWER 62 OF 84 USPATFULL on STN

PI US 5114615 19920519

AN 92:40341 USPATFULL

TI Liquid crystal compounds and intermediates thereof

IN Ishibashi, Shigeki, Musashino, Japan

Nakamura, Kouzaburou, Musashino, Japan

Maruno, Tohru, Musashino, Japan

Nakahata, Masaaki, Kawagoe, Japan

Negishi, Takaaki, Kawagoe, Japan

Urano, Fumiyoshi, Kawagoe, Japan

PA Wako Pure Chemical Industries, Ltd., Tokyo, Japan (non-U.S. corporation)

Nippon Telegraph and Telephone Corporation, Tokyo, Japan (non-U.S. corporation)

PI US 5114615 19920519

AI US 1991-765411 19910925 (7)

RLI Continuation of Ser. No. US 1988-225979, filed on 29 Jul 1988, now abandoned

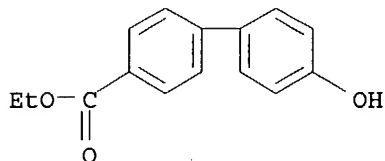
PRAI JP 1987-190193 19870731

DT Utility

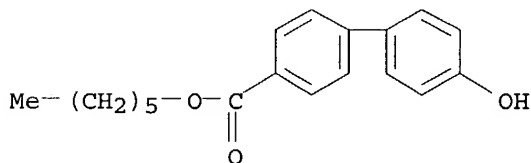
FS Granted

EXNAM Primary Examiner: Stoll, Robert L.; Assistant Examiner: Wu, Shean C.

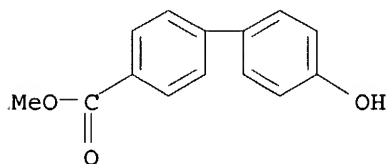
LREP Armstrong, Nikaido, Marmelstein, Kubovcik & Murray  
 CLMN Number of Claims: 4  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1259  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 50670-76-3  
 (reaction of, in formation of liquid-crystal compds.)  
 RN 50670-76-3 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA  
 INDEX NAME)



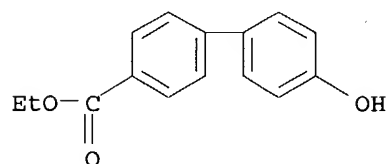
L37 ANSWER 63 OF 84 USPATFULL on STN  
 PI US 5073306 19911217  
 AN 91:101975 USPATFULL  
 TI Optically active compound and liquid crystal composition containing same  
 IN Nohira, Hiroyuki, Urawa, Japan  
 Kamei, Masanao, Annaka, Japan  
 Kanazawa, Hideki, Yotsukaichi, Japan  
 Yamada, Yoko, Atsugi, Japan  
 Etoh, Yuko, Tokorazawa, Japan  
 PA Canon Kabushiki Kaisha, Tokyo, Japan (non-U.S. corporation)  
 PI US 5073306 19911217  
 AI US 1989-385700 19890725 (7)  
 RLI Division of Ser. No. US 1988-223363, filed on 25 Jul 1988, now patented,  
 Pat. No. US 4918213, issued on 17 Apr 1990  
 PRAI JP 1987-186575 19870728  
 JP 1987-204343 19870818  
 JP 1988-41456 19880224  
 JP 1988-71035 19880325  
 JP 1988-166781 19880706  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Maples, John S.; Assistant Examiner: Wu, Shean C.  
 LREP Fitzpatrick, Cella, Harper & Scinto  
 CLMN Number of Claims: 22  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 854  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 120223-98-5  
 (reaction of, in formation of optically active compds. for liquid-crystal  
 compns.)  
 RN 120223-98-5 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, hexyl ester (9CI) (CA  
 INDEX NAME)



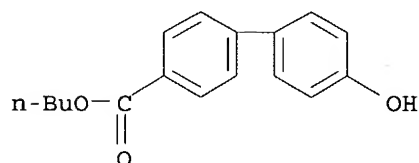
L37 ANSWER 64 OF 84 USPATFULL on STN  
 PI US 5068384 19911126  
 AN 91:96487 USPATFULL  
 TI Phosphate salts of AB-polybenzoxazole monomer  
 IN Harris, William J., Midland, MI, United States  
 Lysenko, Zenon, Midland, MI, United States  
 Hurtig, Carl W., Saginaw, MI, United States  
 PA The Dow Chemical Company, Midland, MI, United States (U.S. corporation)  
 PI US 5068384 19911126  
 AI US 1990-546596 19900629 (7)  
 RLI Division of Ser. No. US 1989-380567, filed on 14 Jul 1989, now patented,  
 Pat. No. US 4959492  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Reamer, James H.  
 CLMN Number of Claims: 10  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 508  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 40501-41-5 50670-76-3 106986-59-8  
 120223-98-5 123790-27-2 131802-88-5  
 (nitration of)  
 RN 40501-41-5 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, methyl ester (9CI) (CA  
 INDEX NAME)



RN 50670-76-3 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA  
 INDEX NAME)

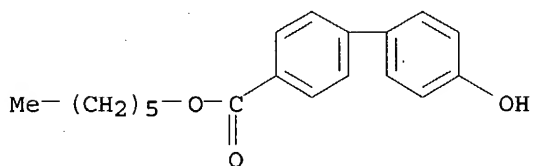


RN 106986-59-8 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, butyl ester (9CI) (CA  
 INDEX NAME)



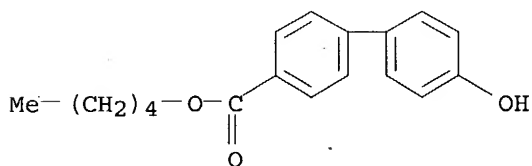
RN 120223-98-5 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, hexyl ester (9CI) (CA  
INDEX NAME)



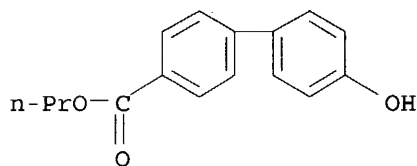
RN 123790-27-2 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, pentyl ester (9CI) (CA  
INDEX NAME)



RN 131802-88-5 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, propyl ester (9CI) (CA  
INDEX NAME)



L37 ANSWER 65 OF 84 USPATFULL on STN

PI US 5055225 19911008

AN 91:81974 USPATFULL

TI Alkyl thiobenzoate derivative, production of same and liquid crystal  
display element

IN Naijoh, Shuichi, Tokyo, Japan

Inoue, Chozo, Tokyo, Japan

Kurotaki, Ayako, Tokyo, Japan

Nagai, Kimie, Tokyo, Japan

PA Showa Denko K.K., Tokyo, Japan (non-U.S. corporation)

PI US 5055225 19911008

AI US 1989-435872 19891114 (7)

PRAI JP 1988-288459 19881114

DT Utility

FS Granted

EXNAM Primary Examiner: Maples, John S.; Assistant Examiner: Tucker, Philip

LREP Sughrue, Mion, Zinn Macpeak & Seas

CLMN Number of Claims: 4

ECL Exemplary Claim: 3

DRWN No Drawings

LN.CNT 527

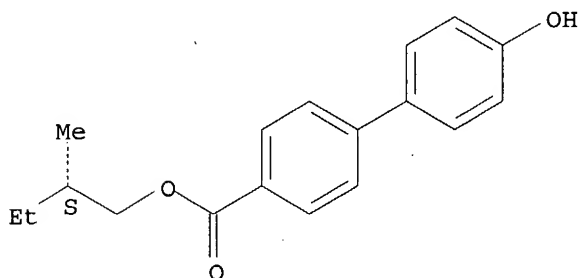
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 91577-91-2P

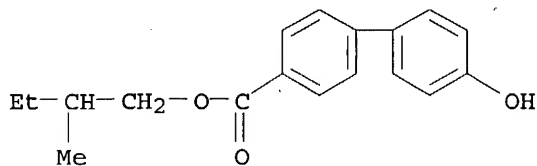
(preparation and reaction of, in formation of optically active compds. for  
liquid-crystal devices)

RN 91577-91-2 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester  
 (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



L37 ANSWER 66 OF 84 USPATFULL on STN  
 PI US 5034153 19910723  
 AN 91:58696 USPATFULL  
 TI Liquid-crystalline polymer composition  
 IN Uchida, Shunji, Chiba, Japan  
 Morita, Kazuharu, Chiba, Japan  
 Hashimoto, Kenji, Chiba, Japan  
 PA Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)  
 PI US 5034153 19910723  
 AI US 1990-577122 19900904 (7)  
 RLI Continuation of Ser. No. US 1988-212475, filed on 28 Jun 1988, now  
 abandoned  
 PRAI JP 1987-159735 19870629  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Maples, John S.; Assistant Examiner: Treanor, Richard  
 LREP Antonelli, Terry, Stout & Kraus  
 CLMN Number of Claims: 6  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 904  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 97054-77-8  
 (reaction of, in formation of ferroelec. liquid-crystal polymers)  
 RN 97054-77-8 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, 2-methylbutyl ester (9CI)  
 (CA INDEX NAME)



L37 ANSWER 67 OF 84 USPATFULL on STN  
 PI US 5011623 19910430  
 AN 91:34145 USPATFULL  
 TI Nonlinear optical material and nonlinear optical device  
 IN Yoshinaga, Kazuo, Machida, Japan  
 Kai, Takashi, Hadano, Japan  
 Egara, Koichi, Tokyo, Japan

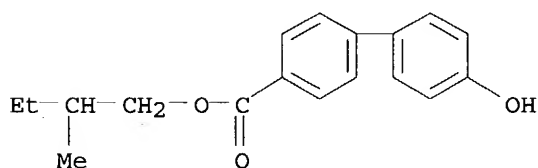
Toshida, Yomishi, Yokohama, Japan  
Mitsutake, Hideaki, Tokyo, Japan  
Sato, Koichi, Atsugi, Japan  
Miyazaki, Takeshi, Ebina, Japan

PA Canon Kabushiki Kaisha, Tokyo, Japan (non-U.S. corporation)  
PI US 5011623 19910430  
AI US 1989-381277 19890718 (7)  
PRAI JP 1988-179097 19880720  
JP 1988-334239 19881230  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Stoll, Robert L.; Assistant Examiner: Treanor, Richard  
LREP Fitzpatrick, Cella, Harper & Scinto  
CLMN Number of Claims: 6  
ECL Exemplary Claim: 1  
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)  
LN.CNT 752  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
IT 97054-77-8P

(preparation and reaction of, in liquid crystal preparation for nonlinear optical

material compns.)

RN 97054-77-8 USPATFULL  
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, 2-methylbutyl ester (9CI)  
(CA INDEX NAME)

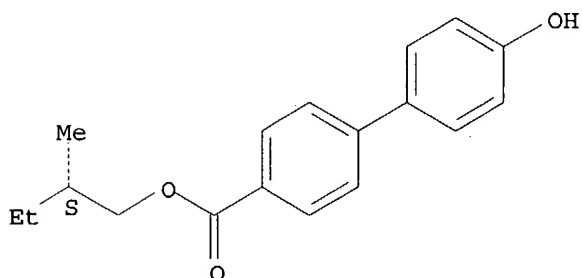


L37 ANSWER 68 OF 84 USPATFULL on STN  
PI US 4988460 19910129  
AN 91:8558 USPATFULL  
TI Ferroelectric liquid-crystalline polymeric composition  
IN Morita, Kazuharu, Chiba, Japan  
Uchida, Shunji, Chiba, Japan  
Yuasa, Kimihiro, Chiba, Japan  
PA Idemitsu Kosan Company Limited, Tokyo, Japan (non-U.S. corporation)  
PI US 4988460 19910129  
AI US 1990-539321 19900613 (7)  
RLI Continuation of Ser. No. US 1988-243425, filed on 12 Sep 1988, now abandoned  
PRAI JP 1987-249209 19871002  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Stoll, Robert L.; Assistant Examiner: Treanor, Richard  
LREP Frishauf, Holtz, Goodman & Woodward  
CLMN Number of Claims: 18  
ECL Exemplary Claim: 1  
DRWN No Drawings  
LN.CNT 1111  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
IT 91577-91-2P

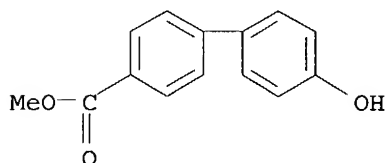
(preparation and reaction of, in formation of ferroelec. liquid-crystal polymeric compns.)

RN 91577-91-2 USPATFULL  
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



L37 ANSWER 69 OF 84 USPATFULL on STN  
PI US 4973738 19901127  
AN 90:91250 USPATFULL  
TI Liquid crystal compounds having naphthalene nucleus  
IN Suzuki, Yoshiichi, Tokyo, Japan  
Kuwamura, Ichiro, Tokyo, Japan  
Hagiwara, Takashi, Tokyo, Japan  
PA Showa Shell Sekiyu K.K., Tokyo, Japan (non-U.S. corporation)  
PI US 4973738 19901127  
AI US 1989-344646 19890428 (7)  
PRAI JP 1988-103763 19880428  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Lone, Werren B.; Assistant Examiner: Clarke, Vera C.  
LREP Sughrue, Mion, Zinn, Macpeak & Seas  
CLMN Number of Claims: 5  
ECL Exemplary Claim: 1  
DRWN 11 Drawing Figure(s); 7 Drawing Page(s)  
LN.CNT 316  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
IT 40501-41-5P  
(preparation and reaction of, in formation of liquid crystals)  
RN 40501-41-5 USPATFULL  
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, methyl ester (9CI) (CA  
INDEX NAME)



L37 ANSWER 70 OF 84 USPATFULL on STN  
PI US 4959492 19900925  
AN 90:75226 USPATFULL  
TI Process to synthesize AB-PBO monomer and phosphate salts thereof  
IN Harris, William J., Midland, MI, United States  
Lysenko, Zenon, Midland, MI, United States  
Hurtig, Carl W., Saginaw, MI, United States  
PA The Dow Chemical Company, Midland, MI, United States (U.S. corporation)  
PI US 4959492 19900925  
AI US 1989-380567 19890714 (7)  
DT Utility  
FS Granted



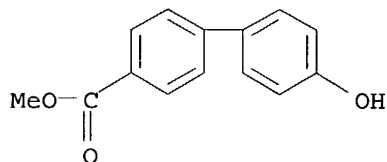
EXNAM Primary Examiner: Reamer, James H.  
CLMN Number of Claims: 34  
ECL Exemplary Claim: 1  
DRWN No Drawings  
LN.CNT 591

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 40501-41-5 50670-76-3 106986-59-8  
120223-98-5 123790-27-2 131802-88-5  
(nitration of)

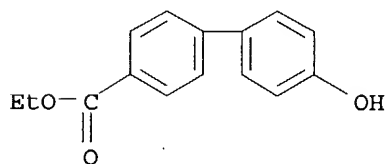
RN 40501-41-5 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, methyl ester (9CI) (CA  
INDEX NAME)



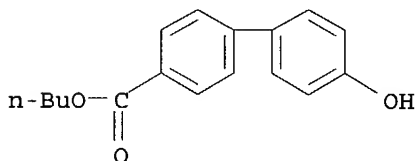
RN 50670-76-3 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA  
INDEX NAME)



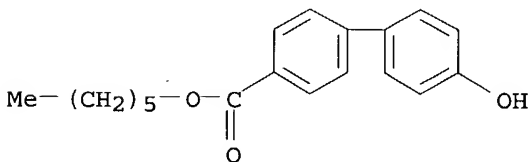
RN 106986-59-8 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, butyl ester (9CI) (CA  
INDEX NAME)



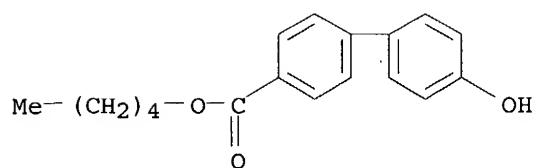
RN 120223-98-5 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, hexyl ester (9CI) (CA  
INDEX NAME)

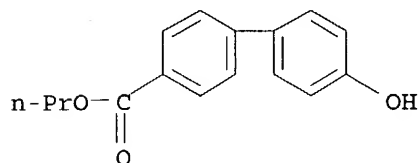


RN 123790-27-2 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, pentyl ester (9CI) (CA  
INDEX NAME)

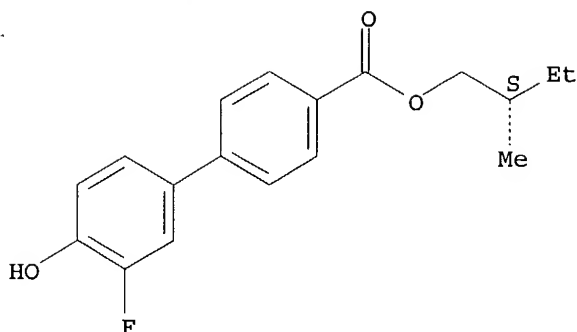


RN 131802-88-5 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, propyl ester (9CI) (CA INDEX NAME)



L37 ANSWER 71 OF 84 USPATFULL on STN  
 PI US 4943386 19900724  
 AN 90:57614 USPATFULL  
 TI Liquid crystalline compounds having substituents  
 IN Takehara, Sadao, Yono, Japan  
 Fujisawa, Toru, Kawaguchi, Japan  
 Arai, Yoshi, Hasuda, Japan  
 Kurokawa, Jitsuo, Ohmiya, Japan  
 PA Dainippon Ink & Chemicals, Inc., Tokyo, Japan (non-U.S. corporation)  
 Kawamura Institute of Chemical Research, Saitama, Japan (non-U.S. corporation)  
 PI US 4943386 19900724  
 AI US 1988-252926 19881004 (7)  
 RLI Division of Ser. No. US 1988-161421, filed on 23 Feb 1988, now patented,  
 Pat. No. US 4828754 which is a continuation of Ser. No. US 1986-815935,  
 filed on 3 Jan 1986, now abandoned  
 PRAI JP 1985-1791 19850109  
 JP 1985-71628 19850404  
 JP 1985-71629 19850404  
 JP 1985-81688 19850417  
 JP 1985-90676 19850426  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Maples, John S.; Assistant Examiner: Treanor, Richard  
 LREP Sherman and Shalloway  
 CLMN Number of Claims: 19  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1563  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 106316-31-8P  
 (preparation of, for liquid-crystal display devices)  
 RN 106316-31-8 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 3'-fluoro-4'-hydroxy-, 2-methylbutyl  
 ester, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



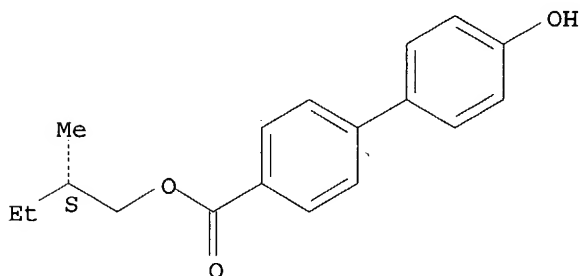
IT 91577-91-2

(reaction of, in preparation of liquid crystals for display devices)

RN 91577-91-2 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester  
(9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



L37 ANSWER 72 OF 84 USPATFULL on STN

PI US 4918213 19900417

AN 90:30154 USPATFULL

TI Optically active compound and liquid crystal composition containing same

IN Nohira, Hiroyuki, Urawa, Japan

Kamei, Masanao, Annaka, Japan

Kanazawa, Hideki, Yotsukaichi, Japan

Yamada, Yoko, Atsugi, Japan

Etoh, Yuko, Tokorozawa, Japan

PA Canon Kabushiki Kaisha, Tokyo, Japan (non-U.S. corporation)

PI US 4918213 19900417

AI US 1988-223363 19880725 (7)

PRAI JP 1987-186575 19870728

JP 1987-204343 19870818

JP 1988-41456 19880224

JP 1988-71034 19880325

DT Utility

FS Granted

EXNAM Primary Examiner: Lee, Mary C.; Assistant Examiner: Richter, J.

LREP Fitzpatrick, Cella, Harper & Scinto

CLMN Number of Claims: 10

ECL Exemplary Claim: 1

DRWN No Drawings

LN.CNT 900

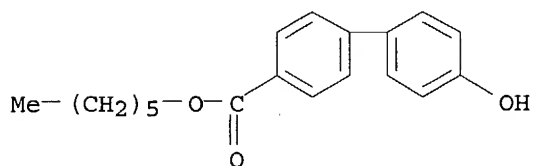
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 120223-98-5

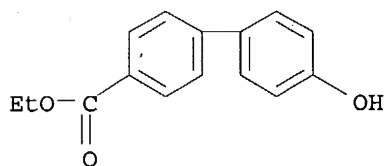
(reaction of, in formation of optically active compds. for liquid-crystal compns.)

RN 120223-98-5 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, hexyl ester (9CI) (CA INDEX NAME)

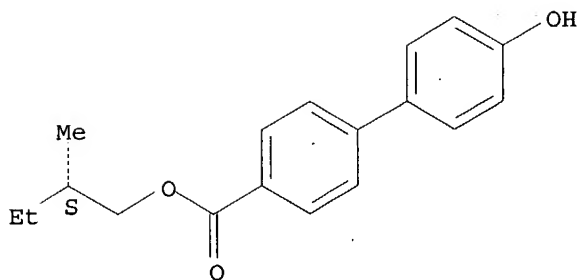


L37 ANSWER 73 OF 84 USPATFULL on STN  
 PI US 4913839 19900403  
 AN 90:25504 USPATFULL  
 TI Ferroelectric liquid crystal polymer  
 IN Uchida, Shunji, Sodegaura, Japan  
 Morita, Kazuharu, Sodegaura, Japan  
 Hashimoto, Kenji, Ichihara, Japan  
 PA Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)  
 PI US 4913839 19900403  
 AI US 1989-340033 19890418 (7)  
 RLI Division of Ser. No. US 1986-383, filed on 22 Dec 1986, now patented,  
 Pat. No. US 4844835  
 PRAI JP 1985-292274 19851226  
 JP 1986-120313 19860527  
 JP 1986-122155 19860529  
 JP 1986-217235 19860917  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Terapane, John F.; Assistant Examiner: Thomas, J. E.  
 LREP Antonelli, Terry & Wands  
 CLMN Number of Claims: 17  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1238  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 50670-76-3P 91577-91-2P 112231-63-7P  
 (preparation and reaction of, in preparation of ferroelec. polyester liquid crystal)  
 RN 50670-76-3 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA INDEX NAME)

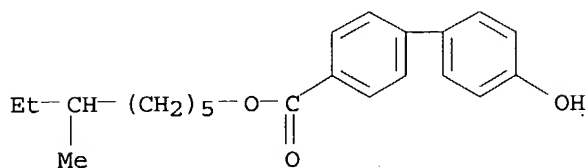


RN 91577-91-2 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

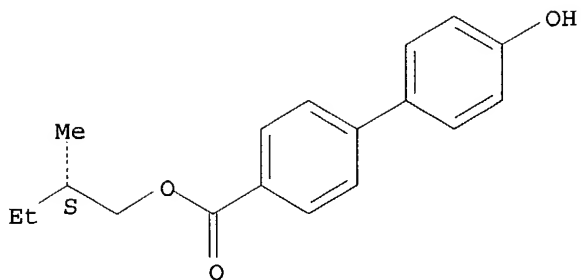


RN 112231-63-7 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, 6-methyloctyl ester (9CI)  
 (CA INDEX NAME)



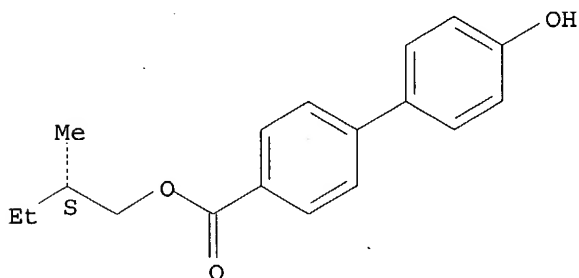
L37 ANSWER 74 OF 84 USPATFULL on STN  
 PI US 4877858 19891031  
 AN 89:89280 USPATFULL  
 TI Liquid-crystalline polymer  
 IN Hachiya, Satoshi, Kimitsu, Japan  
 Uchida, Shunji, Kimitsu, Japan  
 Hashimoto, Kenji, Kimitsu, Japan  
 PA Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)  
 PI US 4877858 19891031  
 AI US 1988-272010 19881116 (7)  
 RLI Continuation-in-part of Ser. No. US 1987-136868, filed on 22 Dec 1987,  
 now abandoned  
 PRAI JP 1986-309466 19861229  
 JP 1987-288475 19871117  
 JP 1987-288476 19871117  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Morris, Theodore  
 LREP Antonelli, Terry & Wands  
 CLMN Number of Claims: 23  
 ECL Exemplary Claim: 1  
 DRWN 28 Drawing Figure(s); 28 Drawing Page(s)  
 LN.CNT 1298  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 91577-91-2  
 (reaction of, with unsatd. chloro compds.)  
 RN 91577-91-2 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester  
 (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

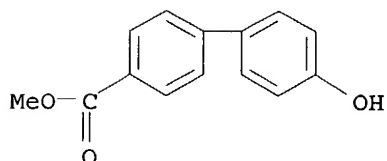


L37 ANSWER 75 OF 84 USPATFULL on STN  
 PI US 4857227 19890815  
 AN 89:67173 USPATFULL  
 TI Liquid crystal mixtures having widened smectic temperature range  
 IN Adams, Timothy G., Allston, MA, United States  
 Sinta, Roger F., Woburn, MA, United States  
 PA Polaroid Corporation Patent Department, Cambridge, MA, United States  
 (U.S. corporation)  
 PI US 4857227 19890815  
 AI US 1987-69172 19870702 (7)  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Gron, Teddy S.; Assistant Examiner: Thomas, J. E.  
 LREP Xiarhos, Louis G.  
 CLMN Number of Claims: 9  
 ECL Exemplary Claim: 1  
 DRWN 2 Drawing Figure(s); 2 Drawing Page(s)  
 LN.CNT 659  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 91577-91-2P  
 (preparation and reaction of, in formation of esters for smectic  
 liquid-crystal mixts.)  
 RN 91577-91-2 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester  
 (9CI) (CA INDEX NAME)

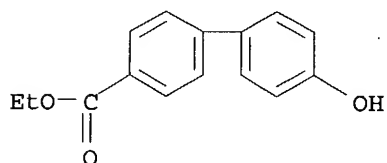
Absolute stereochemistry. Rotation (-).



IT 40501-41-5  
 (reaction of, in formation of esters for smectic liquid-crystal mixts.)  
 RN 40501-41-5 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, methyl ester (9CI) (CA  
 INDEX NAME)

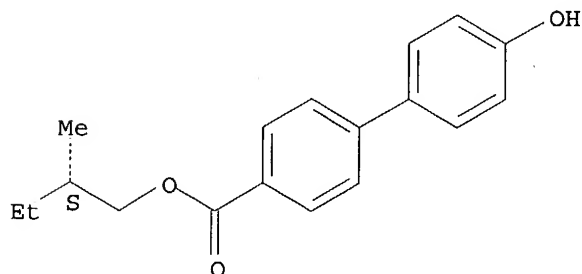


L37 ANSWER 76 OF 84 USPATFULL on STN  
 PI US 4844835 19890704  
 AN 89:53825 USPATFULL  
 TI Ferroelectric liquid crystal polymer  
 IN Uchida, Shunji, Kimitsu, Japan  
 Morita, Kazuharu, Kimitsu, Japan  
 Hashimoto, Kenji, Chiba, Japan  
 PA Idenitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)  
 PI US 4844835 19890704  
 AI US 1986-383 19861222 (7)  
 PRAI JP 1985-292274 19851226  
 JP 1986-120313 19860527  
 JP 1986-122155 19860529  
 JP 1986-217235 19860917  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Gron, Teddy S.; Assistant Examiner: Thomas, J. E.  
 LREP Antonelli, Terry & Wands  
 CLMN Number of Claims: 3  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1190  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 50670-76-3P 91577-91-2P 112231-63-7P  
 (preparation and reaction of, in preparation of ferroelec. polyester liquid crystal)  
 RN 50670-76-3 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA INDEX NAME)

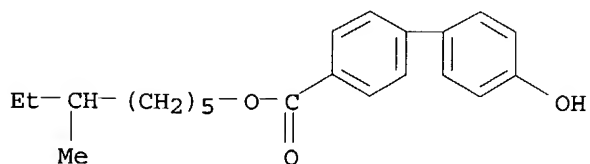


RN 91577-91-2 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).

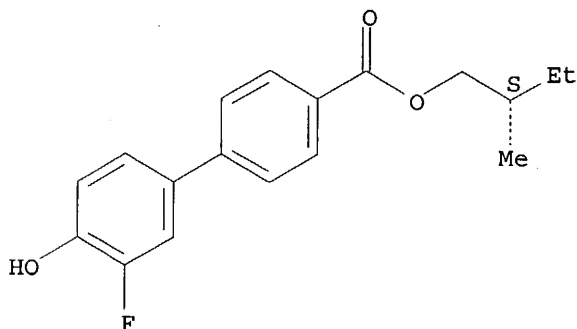


RN 112231-63-7 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, 6-methyloctyl ester (9CI)  
 (CA INDEX NAME)



L37 ANSWER 77 OF 84 USPATFULL on STN  
 PI US 4828754 19890509  
 AN 89:36424 USPATFULL  
 TI Novel liquid crystalline compounds having substituents  
 IN Takehara, Sadao, Yono, Japan  
 Fujisawa, Toru, Kawaguchi, Japan  
 Arai, Yoshi, Hasuda, Japan  
 Kurokawa, Jitsuo, Ohmiya, Japan  
 PA Dainippon Ink & Chemicals, Inc., Tokyo, Japan (non-U.S. corporation)  
 Kawamura Institute of Chemical Res., Saitama, Japan (non-U.S. corporation)  
 PI US 4828754 19890509  
 AI US 1988-161421 19880223 (7)  
 RLI Continuation of Ser. No. US 1986-815935, filed on 3 Jan 1986, now abandoned  
 PRAI JP 1985-1791 19850109  
 JP 1985-71628 19850404  
 JP 1985-81688 19850417  
 JP 1985-90676 19850426  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Gron, Teddy S.; Assistant Examiner: Thomas, J. E.  
 LREP Sherman and Shalloway  
 CLMN Number of Claims: 21  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1629  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 106316-31-8P  
 (preparation of, for liquid-crystal display devices)  
 RN 106316-31-8 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 3'-fluoro-4'-hydroxy-, 2-methylbutyl ester, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.





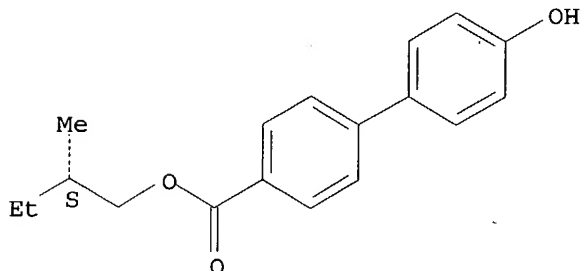
IT 91577-91-2

(reaction of, in preparation of liquid crystals for display devices)

RN 91577-91-2 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester  
(9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



L37 ANSWER 78 OF 84 USPATFULL on STN

PI US 4818807 19890404

AN 89:25896 USPATFULL

TI Liquid-crystalline polymer

IN Morita, Kazuharu, Sodegaura, Japan

Uchida, Shunji, Sodegaura, Japan

Hachiya, Satoshi, Sodegaura, Japan

PA Idemitsu Kosan Co., Ltd., Tokyo, Japan (non-U.S. corporation)

PI US 4818807 19890404

AI US 1987-92612 19870903 (7)

PRAI JP 1986-206851 19860904

JP 1987-173025 19870713

JP 1987-179139 19870720

DT Utility

FS Granted

EXNAM Primary Examiner: Welsh, Maurice J.

LREP Antonelli, Terry & Wands

CLMN Number of Claims: 14

ECL Exemplary Claim: 1

DRWN No Drawings

LN.CNT 1217

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

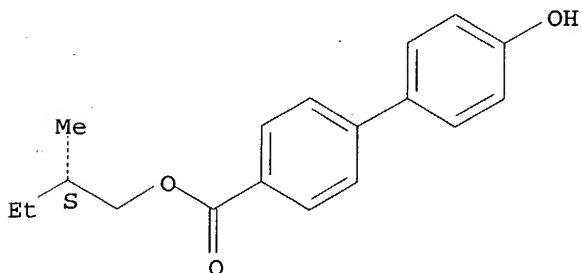
IT 91577-91-2P

(preparation and reaction of, in formation of liquid-crystal polymers)

RN 91577-91-2 USPATFULL

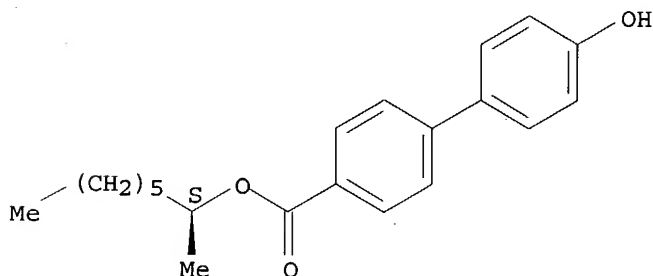
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (2S)-2-methylbutyl ester  
(9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



L37 ANSWER 79 OF 84 USPATFULL on STN  
 PI US 4816181 19890328  
 AN 89:23137 USPATFULL  
 TI Liquid crystal carbonatobenzoic acid derivative and composition  
 IN Miyazawa, Kazutoshi, Yokohamashi, Japan  
 Saito, Shinichi, Yokohamashi, Japan  
 Inoue, Hiromichi, Yokohamashi, Japan  
 Inukai, Takashi, Yokohamashi, Japan  
 Terashima, Kanetsugu, Yokohamashi, Japan  
 PA Chisso Corporation, Tokyo, Japan (non-U.S. corporation)  
 PI US 4816181 19890328  
 AI US 1986-900812 19860827 (6)  
 PRAI JP 1985-187982 19850827  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Gron, Teddy S.; Assistant Examiner: Thomas, J. E.  
 LREP Wenderoth, Lind & Ponack  
 CLMN Number of Claims: 3  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 380  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 111153-19-6P  
 (preparation and esterification of, liquid crystals from)  
 RN 111153-19-6 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, (1S)-1-methylheptyl ester  
 (9CI) (CA INDEX NAME)

Absolute stereochemistry.

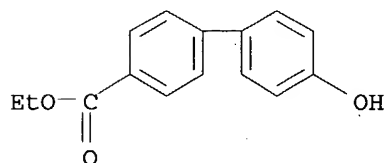


L37 ANSWER 80 OF 84 USPATFULL on STN  
 PI US 4778621 19881018  
 AN 88:67217 USPATFULL  
 TI Ester compound  
 IN Isoyama, Toyoshiro, Yokohama, Japan  
 Ogawa, Tetsuya, Yokohama, Japan  
 Sugimori, Shigeru, Musashino, Japan  
 PA Chisso Corporation, Japan (non-U.S. corporation)  
 PI US 4778621 19881018  
 AI US 1986-917491 19861010 (6)  
 PRAI JP 1985-228346 19851014  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Gron, Teddy S.  
 LREP Leydig, Voit & Mayer  
 CLMN Number of Claims: 5  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 208  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 50670-76-3

(reactions of, in preparation of nematic liquid crystals)

RN 50670-76-3 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA INDEX NAME)



L37 ANSWER 81 OF 84 USPATFULL on STN

PI US 4689176 19870825

AN 87:60114 USPATFULL

TI Novel optically active compound and liquid crystal composition containing same

IN Inoue, Hiromichi, Yokohamashi, Japan  
Saito, Shinichi, Yokohamashi, Japan  
Miyazawa, Kazutoshi, Yokohamashi, Japan  
Inukai, Takashi, Yokohamashi, Japan  
Terashima, Kanetsugu, Yokohamashi, Japan

PA Chisso Corporation, Tokyo, Japan (non-U.S. corporation)

PI US 4689176 19870825

AI US 1985-811757 19851220 (6)

PRAI JP 1984-277077 19841226

DT Utility

FS Granted

EXNAM Primary Examiner: Gron, Teddy S.; Assistant Examiner: Thomas, J. E.

LREP Wenderoth, Lind & Ponack

CLMN Number of Claims: 8

ECL Exemplary Claim: 1

DRWN No Drawings

LN.CNT 500

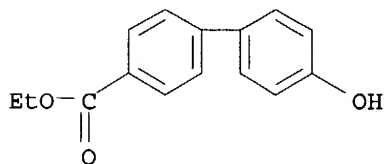
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 50670-76-3

(reaction of, with methylheptyl toluenesulfonate)

RN 50670-76-3 USPATFULL

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA INDEX NAME)



L37 ANSWER 82 OF 84 USPATFULL on STN

PI US 4589996 19860520

AN 86:29573 USPATFULL

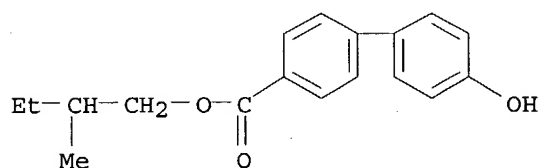
TI Liquid crystalline carbonic acid esters and liquid crystal compositions containing the same

IN Inoue, Hiromichi, Yokohamashi, Japan  
Saito, Shinichi, Yokohamashi, Japan  
Terashima, Kanetsugu, Yokohamashi, Japan  
Inukai, Takashi, Yokohamashi, Japan  
Furukawa, Kenji, Yokosukashi, Japan

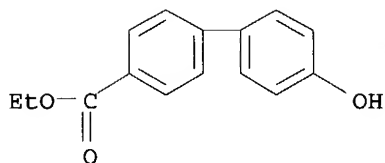
PA Chisso Corporation, Osaka, Japan (non-U.S. corporation)  
 PI US 4589996 19860520  
 AI US 1984-645097 19840828 (6)  
 PRAI JP 1983-162766 19830905  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Gron, Teddy S.  
 LREP Philpitt, Fred  
 CLMN Number of Claims: 7  
 ECL Exemplary Claim: 1,2  
 DRWN No Drawings  
 LN.CNT 595  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 97054-77-8P

(preparation and reaction with nonyloxycarbonyloxybenzoic acid chloride, in preparation of liquid crystalline compound)

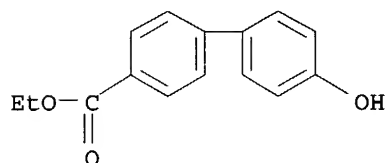
RN 97054-77-8 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, 2-methylbutyl ester (9CI)  
 (CA INDEX NAME)



L37 ANSWER 83 OF 84 USPATFULL on STN  
 PI US 4179578 19791218  
 AN 79:51126 USPATFULL  
 TI Para-phenyl stilbene derivatives  
 IN Fleck, Fritz, Bottmingen, Switzerland  
 Kittl, Hans, Riehen, Switzerland  
 Valenti, Salvatore, Bottmingen, Switzerland  
 PA Sandoz Ltd., Basel, Switzerland (non-U.S. corporation)  
 PI US 4179578 19791218  
 AI US 1977-787510 19770414 (5)  
 RLI Division of Ser. No. US 1975-596287, filed on 16 Jul 1975, now patented,  
 Pat. No. US 4032558 which is a continuation of Ser. No. US 1972-316448,  
 filed on 19 Dec 1972, now abandoned  
 PRAI CH 1971-18907 19711224  
 CH 1972-1123 19720126  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Myers, Jane S.  
 LREP Sharkin, Gerald D., Vila, Richard E., Doyle, Thomas C.  
 CLMN Number of Claims: 5  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1151  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 50670-76-3  
 (esterification of, with fumaroyl chloride)  
 RN 50670-76-3 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA  
 INDEX NAME)



L37 ANSWER 84 OF 84 USPATFULL on STN  
 PI US 4032558 19770628  
 AN 77:34303 USPATFULL  
 TI Para-phenyl stilbene derivatives  
 IN Fleck, Fritz, Bottmingen, Switzerland  
 Kittl, Hans, Riehen, Switzerland  
 Valenti, Salvatore, Bottmingen, Switzerland  
 PA Sandoz Ltd., Basel, Switzerland (non-U.S. corporation)  
 PI US 4032558 19770628  
 AI US 1975-596287 19750716 (5)  
 RLI Continuation of Ser. No. US 1972-316448, filed on 19 Dec 1972, now  
 abandoned  
 DT Utility  
 FS Granted  
 EXNAM Primary Examiner: Torrence, Dolph H.  
 LREP Sharkin, Gerald D., Vila, Richard E., Doyle, Thomas C.  
 CLMN Number of Claims: 4  
 ECL Exemplary Claim: 1  
 DRWN No Drawings  
 LN.CNT 1144  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
 IT 50670-76-3  
 (esterification of, with fumaroyl chloride)  
 RN 50670-76-3 USPATFULL  
 CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-hydroxy-, ethyl ester (9CI) (CA  
 INDEX NAME)



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